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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/599,665	11/03/2006	Akiyoshi Itoh	3716645.00002	2489
24573	7590	03/16/2011	EXAMINER	
K&L Gates LLP			CHAU, LISA N	
P.O. Box 1135			ART UNIT	
CHICAGO, IL 60690			PAPER NUMBER	
			1785	
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

chicago.patents@klgates.com

<b>Office Action Summary</b>	<b>Application No.</b> 10/599,665	<b>Applicant(s)</b> ITOH ET AL.	
	<b>Examiner</b> Lisa Chau	<b>Art Unit</b> 1785	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 29 December 2010.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 4,8 and 14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 4,8 and 14 is/are rejected.
- 7) ☒ Claim(s) 14 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)         | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)         | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date. _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Response to Amendment***

1. Examiner acknowledges amended Claims 4, 14 and canceled Claims 1-3, 5-7, and 9-13 in the response filed on 12/29/10.

### ***Response to Arguments***

2. Applicant's arguments with respect to Claims 4, 8, and 14 have been considered but are moot in view of the new ground(s) of rejection.

The rejection of claims 4, 8, and 14 under 35 U.S.C. 112, first paragraph for failure to provide enablement for voids arrayed in a face-centered cubic lattice configuration is withdrawn. However, the claims are now rejected under 35 U.S.C. 112, second paragraph (please see the rejection below).

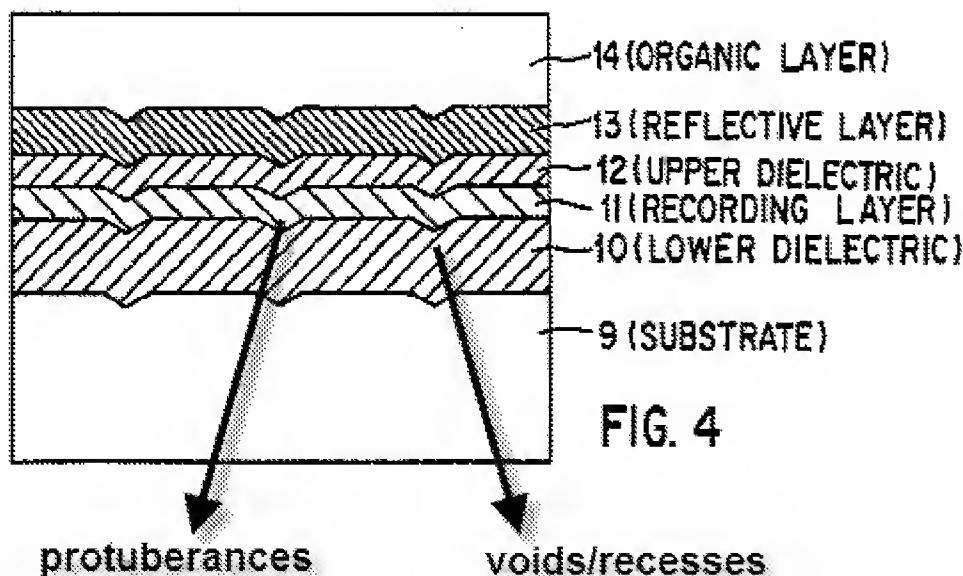
Applicants argue that Nishida fails to disclose or suggest the claimed invention of having a recording layer is formed of amorphous magnetic material including protuberances, each of the protuberances is formed independently by the amorphous magnetic material which is layered on each of the recesses demonstrated in the underlying layer, and each of the protuberances is discrete with respect to one another.

However, the Examiner respectfully disagrees. Nishida teaches a magnetic recording medium comprising a substrate (9), a silicon oxide and a mixture thereof underlying layer (10) in which a large number of recesses of an extremely small size are uniformly demonstrated, and amorphous magnetic film (11) formed on the entire surface of the underlying layer (10) in which said recesses of the extremely small size are

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demonstrated and the protuberances are discrete with respect to one another (Figs. 4, Col. 7: Lines 56-63, Col. 23: Lines 52-56).

The drawing below is a replica of Fig. 4 of Nishida. Nishida discloses the voids/recesses in the underlying layer. With regards to the protuberances/"bulge", Nishida discloses its recording layer's protuberances are in the recesses of the underlying layer, wherein the protuberances is formed independently by the amorphous magnetic material which is layered on each of the recesses and are discrete with one another.



It is not required that the protuberances to be on the outermost/upper surface of the recording layer or protruding toward the surface within each recess (as shown in Applicants' Fig. 7). In the recording layer itself, the protuberances/bulges are towards or inside the voids/recesses (or protruding from the lower surface of the recording layer towards the substrate within the recesses).

Applicants' amendment necessitated the new ground(s) of rejection when claiming recording layer protuberances is formed independently by an amorphous magnetic material and layered on each of the recesses. The claims as drafted before did not necessarily need to have the protuberances on each of the recesses.

### ***Claim Objections***

3. Applicant is advised that should Claim 4 be found allowable, Claim 14 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k). Due to the amendment by Applicants, the recording layer is not formed of amorphous magnetic *films* in Claim 13 anymore. Thus, Claim 14 is now substantially the same as Claim 4.

### ***Claim Rejections - 35 USC § 112***

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 4, 8, and 14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The term "extremely small size" is a relative term which renders the claims indefinite. The term "extremely small size" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary

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skill in the art would not be reasonably apprised of the scope of the invention. For the purpose of evaluating the prior art, any thickness suitable for use in a magnetic recording medium is deemed to meet the claimed limitations. Examiner notes that Claim 8 further disclose the diameter of the voids of several nm to tens of nm which is also broad. It could very well read into 2 nm to infinity, and does not further help define what "extremely small size" is.

Furthermore, it is unclear on the final structure of the magnetic recording medium. The instant claims describe the underlying layer to have voids due to removing micelles that are self-arrayed in a face-centered cubic lattice configuration. Does this mean the voids are in each face and corner lattice of the unit cell of the crystal or are the voids arrayed in a 2D or 3D type of structure? Or is the underlying layer itself a face-centered cubic structure with voids in every corner lattice and face of the unit cell. Are the voids only on the surface or within the underlying layer?

For the purpose of evaluating prior art, any underlying layer with an ordered array of voids meets the instant claims. Examiner notes that voids in the instant claims do not necessarily have to be within the underlying layer. That voids on the surface of the underlying layer (having a pattern) meets the instant claims as well.

Further clarifications/corrections are required.

### ***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

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invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 4, 8, and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent No. 5479382 ("Nishida et al.").

Nishida et al. teaches a magnetic recording medium comprising a substrate (9), a silicon oxide and a mixture thereof underlying layer (10) in which a large number of recesses of an extremely small size are uniformly demonstrated, and amorphous recording layer (11) formed on the entire surface of the underlying layer (10) in which said recesses of the extremely small size are demonstrated and the protuberances are formed independently by the amorphous magnetic material which is layered on each of the recesses demonstrated in the underlying layer, and each of the protuberances are discrete with respect to one another (Fig. 4, Col. 7: Lines 56-63, Col. 23: Lines 52-56).

Nishida et al. teaches its silicon oxide and mixture thereof underlying layer (10) is uniformly arrayed with large number of spherically-shaped voids of the same size, with the diameter of several nm to tens of nm (Fig. 4 and Col. 23: Lines 52-56).

Furthermore, while Nishida et al. is silent on the teachings of its underlying layer (10) to be formed uniformly to a face-centered cubic structure, it is intrinsic that it is a face-centered cubic structure considering both Applicants and Nishida uses silicon oxide and a mixture thereof as its materials. In addition, while Nishida et al. is silent on the teachings of the self arrayed voids to be in a face-centered cubic lattice configuration, one of ordinary skill in the art could arbitrarily draw lines between ordered voids to form a face-centered cubic lattice configuration in Nishida et al.

With regards to the limitations of the underlying layer (10) to be formed of tetraethoxysilane as a feedstock and the surface being processed and the micelles being formed of a F68 or F108 triblock copolymer, even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process.”, (In re Thorpe, 227 USPQ 964,966). Once the Examiner provides a rationale tending to show that the claimed product appears to be the same or similar to that of the prior art, although produced by a different process, the burden shifts to applicant to come forward with evidence establishing an unobvious difference between the claimed product and the prior art product (In re Marosi, 710 F.2d 798, 802, 218 USPQ 289, 292 (Fed. Cir. 1983), MPEP 2113).

### ***Conclusion***

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not



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mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lisa Chau whose telephone number is (571)270-5496. The examiner can normally be reached on Monday-Friday 8:30 AM - 5 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Ruthkosky can be reached on (571) 272 - 1291. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/LC/  
Lisa Chau

/Holly Rickman/  
Primary Examiner, Art Unit 1785